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(54) Cosmetic compositions

(57) A cosmetic composition having improved transfer resistance comprising:

- a) from about 0.1 to about 60% by weight of trimethylated silica;
- b) from about 0.1 to about 60% by weight of a volatile solvent having a viscosity of 0.5 to 100 centipoise

at 25°C;

- c) from about 0.1 to about 60% by weight of a nonvolatile oil having a viscosity of 200 to 1,000,000

centipoise at 25°C; and

- d) from about 0.1 to about 80% of a cosmetically acceptable carrier.

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**COSMETIC COMPOSITIONS**

The invention is in the field of cosmetic compositions for application to the skin or hair, processes for their preparation and their use.

Cosmetic compositions are generally defined as compositions suitable for application to the human body. Cosmetic compositions such as creams and lotions are used to moisturise the skin and keep it in a smooth, supple condition. Pigmented cosmetic compositions such as foundation (makeup), blusher, lipstick and eyeshadow, are used to colour the skin and lips. Since colour is one of the most important reasons for wearing cosmetics, colour-containing cosmetics must be very carefully formulated to provide maximum wear and effect.

One of the long-standing problems with cosmetics such as foundation or face makeup, lipstick, mascara and the like, is the tendency of the cosmetic to blot or transfer from the skin or lashes onto other surfaces such as glassware, silverware or clothing. This not only creates soiling, but forces the cosmetic user to reapply cosmetic at fairly short intervals.

For example, traditional makeup compositions are either water and oil emulsions containing pigments, or they

can be anhydrous systems containing waxes, oils and pigments. These formulations are applied and blended into the skin to provide colour and correct skin topography to provide an even, smooth appearance. The films are simply deposited on the surface of the skin and if touched with fingers the product may transfer or become blotchy and uneven. Perspiration or sebum will break through the film and cause running or smearing. If skin comes into contact with clothing, the clothing may become soiled.

The object of this invention is to formulate a cosmetic with long-lasting adherence to skin.

Another object of the invention is to formulate a cosmetic which yields a film which is not disturbed when blotted to remove sebum or perspiration.

Another object of the invention is to formulate a cosmetic which yields a film which does not readily transfer to clothing or utensils.

Another object of the invention is to formulate a cosmetic which yields a film which exhibits reduced permeability to oil and water.

The invention is directed to a cosmetic composition having improved transfer resistance comprising:

- a) from about 0.1 to about 60% by weight of trimethylated silica;
- b) from about 0.1 to about 60% by weight of a

volatile solvent having a viscosity of from about 0.5 to 100 centipoise at 25°C;

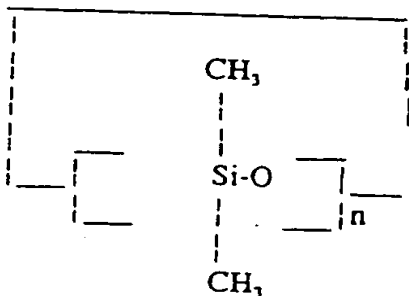
c) from about 0.1 to about 60% of a non-volatile oil having a viscosity of from about 200 to about 1,000,000 centipoise at 25°C; and

d) from about 0.1 to about 80% of a cosmetically acceptable carrier.

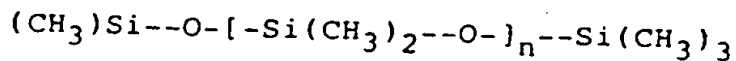
The composition of the invention contains 0.1-60%, preferably 0.5-50%, more preferably 1-30% trimethylated silica (also referred to as trimethyl siloxysilicate). The silica particles preferably have an average particle size of 0.5 to 100 millimicrons; and may be spheroidal or non-spheroidal. The trimethylated silica and the volatile solvent (components) may be added separately, or purchased as a pre-blended mixture. Volatile silicone and trimethylated silica suitable for use in this invention can be made in accordance with US patent specification no. 4,983,388 which is hereby incorporated by reference in its entirety. In the preferred embodiment of the invention, a combination of trimethylated silica and volatile solvent is purchased as a blend from Dow Corning Corporation under the tradenames Dow 2-0747 or 2-0749 cosmetic fluid, which comprise approximately equal parts of a combination of volatile silicones (decamethylcyclopentasiloxane and octamethylcyclotetrasiloxane) and trimethylated silica.

This fluid has a viscosity of 200-700 centipoise as measured by Dow Corning test method CTM 0004A, a specific gravity of 1.000-1.100 at 25°C as measured by Dow Corning test method CTM 0509C, and a refractive index of 1.400-1.410 as measured by Dow Corning test method 0526A. The blend comprises, by weight of the total fluid, approximately 49% of decamethyl cyclopentasiloxane, 1% octamethyl cyclotetrasiloxane and 50% trimethylated silica.

The volatile solvents of this invention generally have a low viscosity ranging from 0.5 to 100, preferably 0.5 to 20, and more preferably 0.5-10 centipoise at 25°C. Volatile solvents suitable for use in the compositions of this invention include volatile low viscosity silicone fluids such as cyclic silicones having the formula:



wherein  $n$  is from 1 to 7. Volatile linear polydimethylsiloxanes are also suitable and generally have from about 2 to 9 silicon atoms and are of the formula:



wherein  $n$  is from 0 to 7. These silicones are available from various sources including Dow Corning Corporation and General Electric. Dow Corning silicones are sold under the tradenames Dow Corning 244, 245, 344, 345 and 200 fluids. These fluids comprise octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, hexamethyldisiloxane, or mixtures thereof.

Also suitable as the volatile solvent component are straight or branched chain hydrocarbons having from 8 to 20 carbon atoms, more preferably from 10 to 16 carbon atoms. Suitable hydrocarbons are decane, dodecane, tetradecane, tridecane, and  $C_{8-20}$  isoparaffins as disclosed in US patent specifications nos. 3,439,088 and 3,818,105, both of which are hereby incorporated by reference in their entirety. Preferred volatile paraffinic hydrocarbons have a molecular weight of from 160 to 180; a boiling point range of from 105 to 320°C; and a viscosity of less than 20 centipoise at 25°C. Such paraffinic hydrocarbons are available from Exxon under the ISOPARS registered trademark, and from Permethyl Corporation. Such  $C_{8-20}$  paraffinic hydrocarbons such as  $C_{12}$  isoparaffin manufactured by the Permethyl Corporation having the tradename Permethyl 99A (registered trademark), or a  $C_{12}$  isoparaffin (isododecane) are distributed by Presperse having the tradename Permethyl 99A (registered trademark). Various  $C_{16}$  isoparaffins are

commercially available, such as isohexadecane (having the tradename Permethyl R (registered trademark)) and are also suitable. The volatile solvent may be a mixture of volatile silicone and isoparaffins; a ratio of from 1:20 to 20:1, respectively, is suggested. The volatile solvent preferably ranges 1-40%, more preferably 5-30% by weight of the total composition.

In the preferred embodiment of the invention, from about 5 to about 35% by weight of the total composition comprises a blend of volatile silicones and trimethylated silica, a fluid having the characteristics set forth hereinbefore, and the composition may contain an additional amount of volatile silicone in addition to that found in the blend.

The non-volatile oil (component (c)) has a viscosity ranging from 200 to 1,000,000 centipoise at 25°C, preferably 200 to 600,000 centipoise at 25°C, and ranges from 0.1-60%, preferably 0.5-30% by weight of the composition.

The non-volatile oil may comprise esters of the formula  $\text{RCO-OR'}$  wherein R and R' are each independently a  $\text{C}_{1-25}$ , preferably a  $\text{C}_{4-20}$ , straight or branched chain alkyl, alkenyl or alkoxy. Examples of such esters include isotridecyl isononanoate, PEG-4 diheptanoate, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate,

cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, coco-dicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, octododecanol, as well as the esters disclosed on pages 24-26 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988. The C.T.F.A. Cosmetic Ingredient Handbook, First Edition, is hereby incorporated by reference in its entirety.

The non-volatile oil may also comprise high viscosity surface oils generally having a viscosity of 100,000 to 250,000 centipoise at 25°C. Such surface oils include castor oil, lanolin, lanolin derivatives, triisocetyl citrate, C<sub>10-18</sub> triglycerides, caprylic/capric/triglycerides, coconut oil, corn oil, cottonseed oil, hydrogenated castor oil, linseed oil, mink oil, olive oil, palm oil, illipe butter, rapeseed oil, soybean oil, sunflower seed oil, tallow, tricaprin, trihydroxystearin, triisotearin, trilaurin, trilinolein, trimyristin, triolein, tripalmitin, tristearin, tribehenin, walnut oil, wheat germ oil, cholesterol, as well as oils set forth on pages 26-27 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

Also suitable as the non-volatile oil are glyceryl esters and derivatives thereof such as acetylated castor



oil, glyceryl stearate, glyceryl dioleate, glyceryl distearate, glyceryl trioctanoate, glyceryl distearate, glyceryl linoleate, glyceryl myristate, glyceryl isostearate, PEG castor oils, PEG glyceryl oleates, PEG glyceryl stearates, PEG glyceryl tallowates, and those further set forth on pages 28-29 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition 1988.

Also suitable as the non-volatile oil are non-volatile hydrocarbons such as isoparaffins, hydrogenated polyisobutene, mineral oil, squalene, petrolatum, and the like.

Also suitable as the non-volatile oil are various lanolin derivatives such as acetylated lanolin, acetylated lanolin alcohol, acetylated lanolin ricinoleate, laneth phosphates and acetates, lanolin acid, lanolin linoleate, lanolin wax, PEG hydrogenated lanolins, PEG lanolins, PPG lanolin alcohol ethers, and those further set forth on page 35 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

Non-volatile non-fluorinated silicones are also suitable as the nonvolatile component. Such silicones have a viscosity of 200 to 600,000 centistokes, preferably 350 to 100,000 centistokes at 25°C. Suitable silicones include amodimethicone, bisphenylhexamethicone, dimethicone, dimethicone copolyol, dimethiconol, hexadecyl methicone,

hexamethyldisiloxane, methicone, phenyl trimethicone, simethicone, dimethylhydrogensiloxane, stearoxy dimethicone, stearoxytrimethylsilane, vinyl dimethicone, and mixtures thereof. Such silicones are available from Dow Corning as the 3225C formulation aid, Dow 190 and 193 fluids, or similar products marketed by Goldschmidt under the ABIL tradename.

Also suitable as the non-volatile oil are various fluorinated oils such as fluorinated silicones or perfluoropolyethers. Particularly suitable are fluorosilicones such as trimethylsilyl endcapped fluorosilicone oil, polytrifluoropropylmethylsiloxanes, and similar silicones such as those disclosed in US patent specification no. 5,118,496 which is hereby incorporated by reference in its entirety. The non-volatile component may comprise mixtures of fluorosilicones and dimethylpolysiloxanes. The non-volatile component may also comprise perfluoropolyethers like those disclosed in US patent specifications nos. 5,183,589, 4,803,067 and 5,183,588 each of which is hereby incorporated by reference in its entirety. These perfluoropolyethers are commercially available from Montefluos under the trademark Fomblin.

Other suitable non-volatile oils include sorbitan derivatives such as PEG sorbitan beeswax, PEG sorbitan

isostearate, PEG sorbitan lanolate, PEG sorbitan laurate, PEG sorbitan oleate, PEG sorbitan palmitate, PEG sorbitan stearate, polysorbates, sorbitan trioleates, sorbitan sesquioleates, sorbitan stearates, sorbitan tristearates, and the like, as set forth on page 44 of the C.T.F.A Cosmetic Ingredient Handbook, First Edition, 1988.

The compositions of the invention contain from 0.1 to 80% of a cosmetically acceptable carrier (component (d)) which may be a water/oil emulsion, a colour cosmetic such as blusher, liquid or powder makeup, eyeshadow, mascara, concealer, lipstick, and the like.

Creams or lotions are generally water and oil emulsions containing water, humectants, surfactants, preservatives, sunscreens, dry particulate matter, and the like. Generally the ranges of these ingredients are 0.1-80% water, 0.01-10% humectants, 0.01-5% surfactants, 0.001-5% preservatives, and 0.001-10% sunscreens. Suitable emollients, humectants, surfactants, preservatives and sunscreens are as set forth in the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

Creams may be anhydrous or aqueous, and water, humectants, surfactants, thickeners, preservatives and sunscreens, as mentioned above, may also be included.

The creams and lotions of the invention are particularly good vehicles for sunscreen. In particular,

about 0.001-10% by weight of various sunscreen compounds such as PABA (para-amino benzoic acid) and derivatives thereof can be incorporated into the cream or lotion. Because the compositions exhibit superior transfer resistance characteristics, the sunscreens are able to remain on the skin for a longer time period. Especially suitable creams in accordance with the invention are sunscreen creams comprising:

1-30% trimethylated silica

1-40% volatile solvent

0.5-30% non-volatile oil

0.1-70% dry, particulate matter

The dry, particulate matter is selected from titanium dioxide and other powdered materials which provide good sunscreen protection. Usually, titanium dioxide forms the majority of the dry, particulate matter.

Preferably, the compositions of this invention comprise a carrier which is a colour cosmetic composition such as lipstick, powder, blush, eyeshadow, liquid or powder makeup, and the like.

Suitable face powders generally contain a dry particulate matter having a particle size of from 0.02 to 200, preferably 0.5 to 100 microns. The particulate matter may be coloured or non-coloured (for example, white) and, in particular, pigments are considered as powders for the

purposes of this invention. Suitable powders include bismuth oxychloride, titanated mica, fumed silica, spherical silica, polymethylmethacrylate, micronized Teflon (registered trademark), boron nitride, acrylate polymers, aluminum silicate, aluminium starch octenylsuccinate, bentonite, calcium silicate, cellulose, chalk, corn starch, diatomaceous earth, Fuller's earth, glyceryl starch, hectorite, hydrated silica, kaolin, magnesium aluminum silicate, magnesium carbonate, magnesium hydroxide, magnesium oxide, magnesium silicate, magnesium trisilicate, maltodextrin, montmorillonite, micro-crystalline cellulose, rice starch, silica, talc, mica, titanium dioxide, zinc laurate, zinc myristate, zinc neodecanoate, zinc rosinate, zinc stearate, polyethylene, alumina, attapulgite, calcium carbonate, calcium silicate, dextran, kaolin, nylon, silica silylate, silk powder, sericite, soy flour, tin oxide, titanium hydroxide, trimagnesium phosphate, walnut shell powder, or mixtures thereof. The above-mentioned powders may be surface-treated with lecithin, amino acids, mineral oil, silicone oil, or various other agents either alone or in combination, which coat the powder surface and render the particles hydrophobic.

The powder component may also comprise various organic and inorganic pigments. The organic pigments are generally

various aromatic types including azo, indigoid, triphenylmethane, anthraquinone, and xanthine dyes which are designated as D&C and FD&C blues, browns, greens, oranges, reds, yellows and the like. Organic pigments generally consist of insoluble metallic salts or certified colour additives, referred to as the Lakes. Inorganic pigments include iron oxides, ultramarine and chromium or chromium hydroxide colours, and mixtures thereof.

The percentage of pigments used in the powder component will depend upon the type of cosmetic being formulated. Blushers, eyeshadow, lipsticks and similar cosmetics will contain higher percentages of pigment in the powder phase, usually ranging from 5 to 50% of the total cosmetic composition. Generally the pigment : powder ratio ranges from 1:20 to 20:1.

Preferred face powder compositions comprise:

0.1-60% trimethylated silica;

0.1-60% of a volatile solvent having a viscosity of 0.5 to 100 centipoise at 25°C;

0.1-60% of a non-volatile oil having a viscosity of 200 to 1,000,000 centipoise at 25°C; and

0.1-80% of a dry particulate matter.

The composition of the invention may also be incorporated into mascaras which generally comprise film formers, waxes, emulsifiers, and pigment.

Suitable mascara compositions comprise:

0.1-15% trimethylated silica;

0.1-40% of a volatile solvent having a viscosity of 0.5 to 100 centipoise at 25°C;

0.1-10% of a non-volatile oil;

0.1-30% of a dry particulate matter;

0.1-20% film former;

0.1-30% wax; and

0.1-10% emulsifier.

Preferably, the volatile solvent comprises a mixture of a volatile silicone and a volatile hydrocarbon, and the dry particulate matter comprises a combination of pigments and non-pigment powders.

Suitable film formers include acacia gum, cellulose derivatives, guar derivatives and all those set forth on pages 68-69 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

Suitable waxes have a melting point ranging from 35 to 120°C and include natural and synthetic waxes such as bayberry wax, beeswax, candelilla wax, carnauba, ceresin, cetyl esters, hydrogenated jojoba oil, hydrogenated jojoba wax, hydrogenated rice bran wax, japan wax, jojoba butter, jojoba oil, jojoba wax, lanolin wax, microcrystalline wax, mink, montan acid, montan, ouricury, ozokerite, rice bran, shellac, synthetic beeswax and synthetic wax, etc.

Suitable emulsifiers or emulsifying agents are as set forth on pages 90 to 94 of the C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

The composition of the invention may also be incorporated into water and oil emulsion makeup compositions or foundations. Makeup generally contains water and pigment in addition to an oil phase. Suitable cosmetic makeup compositions comprise:

0.1-20% trimethylated silica

0.1-40% of a volatile solvent having a viscosity of 0.5 to 100 centipoise at 25°C,

0.1-25% of a non-volatile oil having a viscosity of 350 to 1,000,000 centipoise at 25°C.,

0.1-70% dry particulate matter having a particle size of 0.02 to 100 microns, and

0.1-50% water.

Preferably, the non-volatile oils are dimethicone and dimethicone copolyol, and the pigment to powder ratio is 1:20 to 20:1.

The cosmetically acceptable vehicle may also be a blusher. Preferred are blushers comprising:

0.1-20% trimethylated silica,

0.1-30% of a volatile solvent having a viscosity of 0.5 to 100 centipoise at 25°C.,

0.1-25% of a non-volatile oil having a viscosity of 200



to 1,000,000 centipoise at 25°C.,

0.1-10% water, and

0.1-70% dry particulate matter having a particle size of 0.02 to 100 microns.

In the above composition, it is preferred that the non-volatile oils are dimethylhydrogen siloxane, dimethicone, dimethiconol and fluorosilicone.

The cosmetically acceptable vehicle may also be an eyeshadow. Eyeshadows generally contain pigment or powder in addition to waxes and oils. Preferred eyeshadow compositions comprise:

0.1-20% trimethylated silica,

0.1-30% of a volatile solvent having a viscosity of 0.5 to 100 centipoise at 25°C.,

0.1-40% non-volatile oil,

0.1-60% dry particulate matter having a particle size of 0.02 to 100 microns.

In the above eyeshadow composition, it is preferred that the volatile solvent comprises cyclomethicone and the non-volatile oil comprises dimethiconol.

The cosmetically acceptable vehicle may also be a concealer, which generally comprises pigment or powder, wax and other ingredients such as humectants, preservatives and others such as those mentioned hereinbefore. A preferred composition of the invention is a concealer comprising:

0.1-15% trimethylated silica,  
0.1-40% of a volatile solvent having a viscosity of  
0.5 to 100 centipoise at 25°C,  
0.1-35% of a nonvolatile oil having a viscosity of 350  
to 1,000,000 centipoise at 25°C, and  
0.1-40% of a dry particulate matter having a particle  
size of 0.02 to 100 microns.

In this concealer composition it is preferred that the  
non-volatile oil comprises fluorinated silicon,  
dimethylpolysiloxane or mixtures thereof.

The cosmetically acceptable vehicle may be a lipstick.  
Lipsticks are generally comprised of wax, oil and pigment.  
Preferred lipstick compositions comprise:

0.1-60% trimethylated silica,  
0.1-60% volatile solvent,  
0.1-60% non-volatile oil,  
0.1-80% dry, particulate matter,  
0.1-40% wax.

Lipstick compositions may additionally contain one or more  
of preservatives, antioxidants, emulsifiers, thickeners,  
and the like. The ingredients corresponding to these  
categories may be selected from those set forth in the  
C.T.F.A. Cosmetic Ingredient Handbook, First Edition, 1988.

The compositions of the invention provide cosmetics  
which adhere well to the skin and exhibit improved transfer

resistance.

The invention will be further described by reference to the following examples which are set forth for the purpose of illustration only.

EXAMPLE 1

A makeup composition was made as follows:

	<u>w/w%</u>
1 Cyclomethicone/dimethicone copolyol	20.85
1 Sorbitan sesquioleate	0.05
1 Propyl paraben	0.10
1 Titanium dioxide/methicone	8.00
1 Red iron oxide/methicone	0.47
1 Yellow iron oxide/methicone	1.16
1 Black iron oxide/methicone	0.18
1 Mica/dimethicone	0.98
2 Nylon 12/lecithin	2.00
2 Boron nitride	4.00
3 Cyclomethicone	1.00
3 Dimethicone	1.50
3 Dow Corning 2-0747	15.00
3 Tribehenin	2.00
4 Glyceryl rosinate/C <sub>9-11</sub> isoparaffin	5.00
5 Water	30.00
6 Methyl paraben	0.20
6 Trisodium EDTA	0.20
6 Butylene glycol	4.50
7 SD alcohol 40-B	3.00

The sequence 1 ingredients were milled in the colloid mill, one after the other until no undispersed white or colour was present. Then sequence 2 ingredients were milled in until dispersed. In the main beaker, sequence 1 and 2 were charged and heated to 55-60°C. Then sequence 3 ingredients were added. When all the tribehenin was melted, the sequence 4 ingredients were added. For the

water phase, in a side beaker the sequence 5 ingredients and a pre-mix of sequence 6 ingredients were heated to 50-55°C. Just before emulsification, the sequence 7 ingredients were added to the water phase. The water phase and the oil phase were then emulsified using a homogenizer for 15 minutes. The mixture was cooled using a paddle mixer.

EXAMPLE 2

A mascara composition was made as follows:

	<u>w/w%</u>
Carnauba wax	4.25
Candelilla wax	9.25
Beeswax	4.60
Synthetic wax	4.85
BHA	0.05
Propyl paraben	0.10
Glyceryl rosinate/C <sub>9-11</sub> isoparaffin	12.00
Lanolin acid	6.00
Isododecane	16.40
Oleyl alcohol	1.00
Black iron oxide	10.00
Silica	4.50
Polyethylene	2.00
Water	7.60
Methyl paraben	0.35
Sodium EDTA	0.10
Sodium dehydroacetate	0.30
Yeast glycoprotein	1.00
Hydrolyzed keratin	0.05
Ammonium hydroxide	0.60
Dow Corning 2-0747	15.00

The ingredients were mixed sequentially.

EXAMPLE 3

A blusher was made as follows:

	<u>w/w%</u>
Dow Corning 2-0747 cosmetic fluid	32.50
Dow Corning silastic Q7-4350 (silica, methyl and methyl vinyl siloxane copolyer)	5.50
Dimethicone/dimethiconol	3.00
Boron nitride	5.00
Talc	4.00
Water	2.00
Ethyl alcohol	3.00
Iron Oxides	3.00
Red #30 lake	1.80
Titanium dioxide	4.00
Quaternium 18 hectorite/cyclomethicone	20.00
Cyclomethicone	12.20
Trifluoropropylmethylpolysiloxane (Dow Corning FS-1265)	4.00

EXAMPLE 4

A concealer was made as follows:

	<u>w/w%</u>
Dow Corning 2-0747	20.00
Iron oxides	4.00
Titanium dioxide	14.00
Talc	8.00
Water	3.00
Ethyl alcohol	3.00
Dow Corning Silastic Q7-4350	7.00
Dimethyl polysiloxane	10.00
Cyclomethicone	19.00
Trifluoropropylmethyl polysiloxane (Dow Corning FS-1265)	4.00

EXAMPLE 5

An eyeshadow formulation was made as follows:

	<u>w/w%</u>
Talc	22.41
Mica	20.00
Zinc stearate	1.50

Polyethylene/talc	5.00
Mica/titanium dioxide	10.00
Polyethylene	1.50
Bismuth oxychloride	4.49
Titanium dioxide	4.00
Black iron oxide	0.15
Yellow iron oxide	0.35
Red iron oxide	0.60
Dow Corning 2-0747	22.00
Cyclomethicone	2.00
Cyclomethicone/dimethiconol	3.00
Coco caprylate caprate	3.00

#### EXAMPLE 6

A sun-blocking cream was made as follows:

	<u>w/w%</u>
Dow Corning 2-0747	30.00
Iron oxides	3.50
Titanium dioxide	20.00
Zinc oxide	5.00
Boron nitride	8.00
Dow Corning Silastic Q7-4350	7.00
Hexamethyl disiloxane	10.00
Cyclomethicone	11.50
Trifluoropropylmethyl polysiloxane	5.00

#### EXAMPLE 7

The eyeshadow formula of Example 5 (ES) was subjected to panel testing. Three panelists were asked to apply the eyeshadow to the eyelids. Fourteen hours later the panelists were asked to rate the eyeshadow as follows:

	<u>No. of panelists</u>	
	<u>Yes</u>	<u>No</u>
Was ES smooth & creamy?	3	0
Did ES apply easily?	3	0
Did ES have good deposit?	3	0
Did ES have even coverage?	3	0
Did ES have good appearance?	3	0
How long did ES wear?	12 hours	- 2 panelists
	10 hours	- 1 panelist

### CLAIMS

1. A cosmetic composition comprising:
  - a) from about 0.1 to about 60% by weight of trimethylated silica;
  - b) from about 0.1 to about 60% by weight of a volatile solvent having a viscosity of from 0.5 to 100 centipoise at 25°C;
  - c) from about 0.1 to about 60% by weight of a non-volatile oil having a viscosity of 200 to 1,000,000 centipoise at 25°C; and
  - d) from about 0.1 to about 80% of a cosmetically acceptable carrier.
2. A composition according to claim 1 wherein the trimethylated silica has an average particle size of from about 0.5 to about 100 millimicrons.
3. A composition according to claim 1 or claim 2 wherein the volatile solvent comprises a cyclic silicone, a linear silicone, a C<sub>8</sub>-20 paraffin, or a mixture thereof.
4. A composition according to any preceding claim comprising:
  - a) 0.5-50% trimethylated silica;
  - b) 1-40% of a volatile silica;
  - c) 0.1-40% by weight of a non-volatile oil; and
  - d) 10-70% of a cosmetically acceptable carrier,wherein the trimethylated silica and volatile silicone are

present as a fluid blend having a viscosity of 200 to 700 centipoise.

5. A composition according to any preceding claim wherein the cosmetically acceptable carrier is in the form of a lotion.

6. A composition according to any of claims 1 to 4 wherein the cosmetically acceptable carrier is in the form of an anhydrous cream.

7. A composition according to claim 6 comprising:

- a) 1-30% trimethylated silica;
- b) 1-40% of a volatile solvent;
- c) 0.5-30% non-volatile oil; and
- d) 0.1-70% dry particulate matter.

8. A composition according to any of claims 1 to 3 wherein the cosmetically acceptable carrier is in the form of a face powder.

9. A composition according to claim 8 having the formula:

- a) 0.1-60% trimethylated silica;
- b) 0.1-60% of a volatile solvent;
- c) 0.1-60% non-volatile oil; and
- d) 0.1-80% of a dry particulate matter having from 5 to 50% pigment in the powder phase.

10. A composition according to any of claims 1 to 3 wherein the cosmetically acceptable carrier is in the form



of a mascara.

11. A composition according to claim 10 comprising:
  - a) 0.1-15% trimethylated silica;
  - b) 0.1-40% of a volatile solvent;
  - c) 0.1-10% non-volatile silicone;
  - d) 0.1-30% dry particulate matter having from 5 to 50% pigment in the particle phase;
  - e) 0.1-20% film former;
  - f) 0.1-30% wax; and
  - g) 0.1-10% emulsifier.
12. A composition according to any of claims 1 to 3 wherein the cosmetically acceptable carrier is in the form of a water and oil emulsion makeup or foundation.
13. A composition according to claim 12 comprising:
  - 0.1-20% trimethylated silica;
  - 0.1-40% of a volatile solvent;
  - 0.1-25% non-volatile oil;
  - 0.1-70% dry particulate matter having a pigment to powder ratio of 1:20 to 20:1; and
  - 0.1-50% water.
14. A composition according to any of claims 1 to 3 wherein the cosmetically acceptable carrier is in the form of an eyeshadow.
15. A composition according to claim 14 comprising:
  - 0.1-20% trimethylated silica;

0.1-30% volatile solvent;  
0.1-40% non-volatile oil; and  
0.1-60% dry particulate matter.

16. A composition according to any of claims 1 to 3 wherein the cosmetically acceptable carrier is in the form of a concealer.

17. A composition according to claim 16 comprising:

0.1-15% trimethylated silica;  
0.1-40% volatile solvent;  
0.1-35% non-volatile oil; and  
0.1-40% dry particulate matter.

18. A composition according to claims 1 to 3 wherein the cosmetically acceptable carrier is in the form of lipstick.

19. A composition according to claim 18 comprising:

0.1-60% trimethylated silica;  
0.1-60% volatile silicone;  
0.1-60% non-volatile oil;  
0.1-80% dry particulate matter; and  
0.1-40% wax.

20. A composition according to any preceding claim wherein at least a portion of the trimethylated silica and volatile solvent are present as a fluid blend having a viscosity of from about 200 to about 700 centipoise.

21. A composition according to any preceding claim wherein the non-volatile oil comprises non-fluorinated

silicone, fluorinated silicone, esters of the general formula  $\text{RCO-OR}^1$  wherein R and  $\text{R}^1$  are each independently selected from  $\text{C}_{1-25}$  straight or branched chain alkyls, alkenyls and alkoxys, or a mixture thereof.

22. A composition according to any preceding claim wherein the cosmetically acceptable carrier is or includes dry particulate matter selected from titanium dioxide, iron oxides, mica, nylon, boron nitride, and mixtures thereof.

23. A cosmetic product comprising a cosmetic composition according to any of claims 1 to 19 in a suitable container therefor.

24. A process for preparing a cosmetic composition according to any preceding claim which process comprises bringing

(a) from about 0.1 to about 60% by weight of trimethylated silica;

(b) from about 0.1 to about 60% by weight of a volatile solvent having a viscosity of from about 0.5 to 100 centipoise at  $25^{\circ}\text{C}$ ; and

(c) from about 0.1 to about 60% by weight of a non-volatile oil having a viscosity of from about 200 to about 1,000,000 centipoise at  $25^{\circ}\text{C}$

into intimate physical admixture with from about 0.1 to about 80% by weight of a cosmetically acceptable carrier therefor.

25. The use of

(a) from about 0.1 to about 60% by weight of trimethylated silica;

(b) from about 0.1 to about 60% by weight of a volatile solvent having a viscosity of from about 0.5 to 100 centipoise at 25°C; and

(c) from about 0.1 to about 60% by weight of a non-volatile oil having a viscosity of from about 200 to about 1,000,000 centipoise at 25°C in the preparation of a cosmetic composition for improving skin adhesion and/or transfer resistance of the cosmetic.

26. A cosmetic composition according to any of claims 1 to 23 when prepared by the process of claim 24.

27. A cosmetic composition, process, cosmetic product or use substantially as hereinbefore described with reference to the description and examples.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under Section 17**  
**(The Search report)**

Application number  
GB 9521721.2

**Relevant Technical Fields**

- (i) UK CI (Ed.O)      A5B: BFE, BFF, BFH  
(ii) Int CI (Ed.5)      A61K: 7/02, 7/021, 7/025, 7/031,  
7/032, 7/035, 7/42, 7/48

Search Examiner  
MRS S E CHALMERS

Date of completion of Search  
18 JANUARY 1996

**Databases (see below)**

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-  
1-27

(ii) ONLINE: WPI, CLAIMS

**Categories of documents**

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| <p><b>X:</b> Document indicating lack of novelty or of inventive step.</p> <p><b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p><b>A:</b> Document indicating technological background and/or state of the art.</p> | <p><b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.</p> <p><b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p><b>&amp;:</b> Member of the same patent family; corresponding document.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Category	Identity of document and relevant passages		Relevant to claim(s)
X, Y	GB 2027341 A	(REVLON) see eg Example 5, page 1, lines 32-36 and lines 71-75	X: 4, 12, 21-25 Y: 1-4, 12, 21-25 at least
X	EP 0151984 A2	(BEECHAM) see eg Examples 2 and 3	1-5, 21-24 at least
Y	US 4988503 A	(REVLON) see eg the Example and Claim 1	Y: 1-4, 12, 21-25 at least
X	US 4431673 A	(REVLON) see eg the Examples	1-4, 6, 14, 16, 21-24 at least
X	WPI Abstract 84-210426 and JAPIO Abstract & JP 59122415 A (KOBAYASHI)		1-4, 24 at least

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